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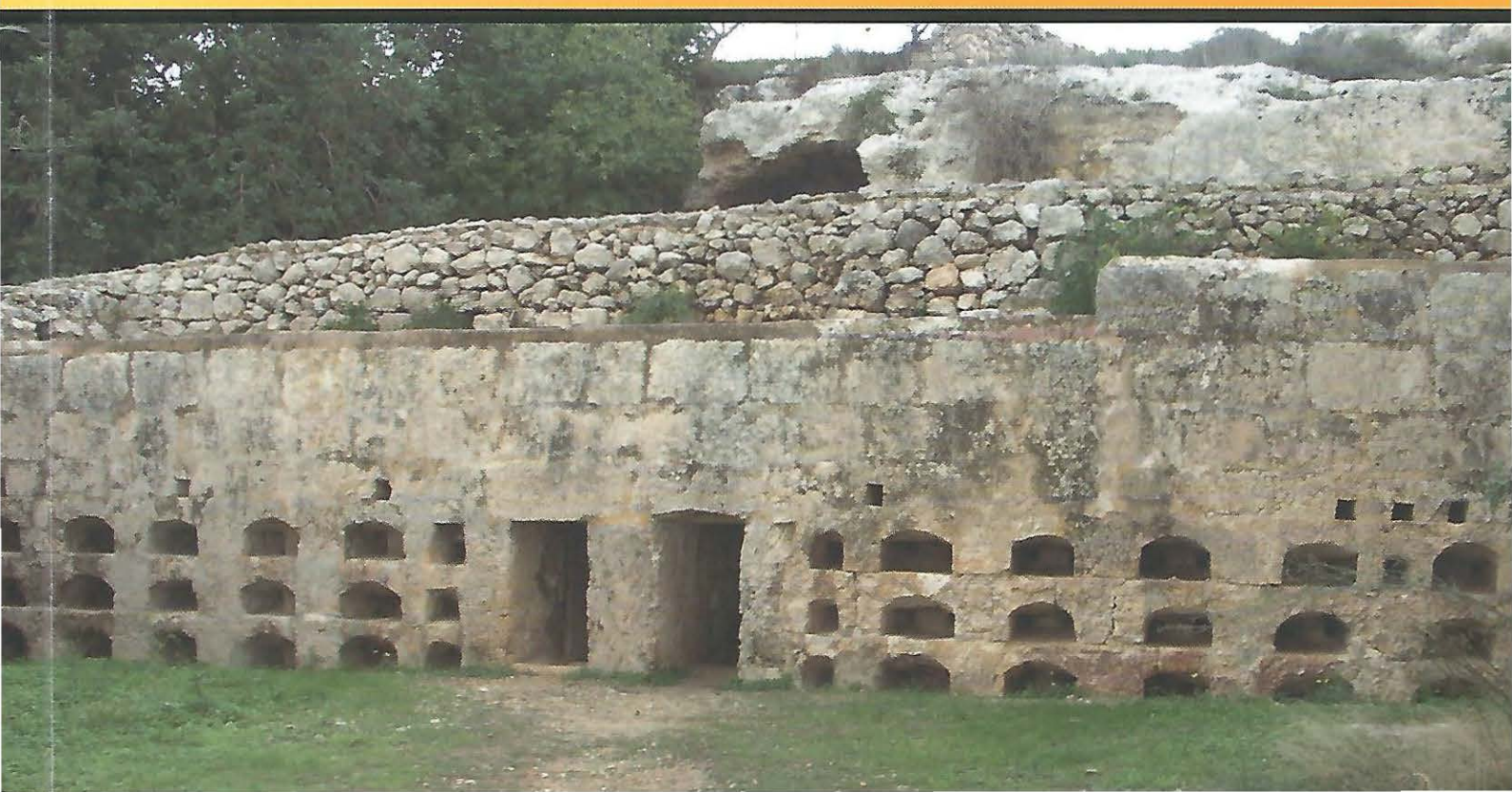

Book of Abstracts

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In this study, dry matter, total phenolic, flavanoid contents, total antioxidant capacities (CUPRAC method) and phenolic profiles of totally 30 propolis products sold in the Turkish market as drop forms were investigated.

Total phenolic, flavonoid contents, total antioxidant capacities (CUPRAC method) of the samples were analyzed with spectrophotometer. Their phenolic profiles were investigated via HPLC. The samples include different extracts of propolis whose solvents were classified as ethanol + water, water, glycerin + water, propylene glycol + water, glycerin and olive oil.
It was found that the total phenolic and flavonoid contents of ethanolic extracts of propolis were higher than those of aqueous extracts.

As a result of phenolic profile assay, the most frequently seen compounds were found as caffeic acid, cinnamic acid and ferulic acid. The number of phenolic acids and flavonoids detected in ethanolic extracts of propolis was found higher than those detected in aqueous extracts of propolis.

To sum up, it can be concluded that the solvent used in the extraction of propolis is an significant parameter affecting the antioxidant properties of the final product. This research showed that the number of studies investigating different parameters which affect the antioxidant properties of propolis should be increased. The findings to be obtained may elucidate the further studies regarding the standardization of propolis.

Can Invertase Activity Be an Important Marker for Raw Honey?

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Crystallization is a complicated problem for many blossom honeys. A partial or entire crystallization of commercial honeys is often considered a defect by consumers. It can have undesirable effects for honey producers thanks to technological and processing issues. Some new criteria are needed to distinguish whether honey is raw honey or process honey. An important indicator of the freshness and raw honey are enzyme activities of honeys. Amylase (diastase), invertase, glucose oxidase, catalase and phosphatase are main enzymes of honeys. In this study, we compared invertase and glucose oxidase activities between raw and processed honeys to distinguish of them. So, we aimed to catch a new quality indicator to serve for honey classification literature. The results were showed that both of the enzymes were affected by heating but invertase activity was found an important parameter with a wide-ranging data.

Comparison of The Quality of Bee Pollen Stored Frozen and Dried

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Bee pollen is a healthy food product that is usually consumed as dried crunchy pellets. Even so, it is possible consume this product as frozen fresh pellets. In this study we present the effect of the storage conditions on the chemical composition of different monofloral bee pollen samples and the changes on the lipid profile of bee pollen samples submitted to freezing and drying conservation methods (Anjos et al., 2019; Estevinho et al., 2019). Nine bee pollen samples with different botanical origins were harvested in the Northeast of Portugal and divided into two different groups: the first one was frozen at −20°C and the second one was dried at 42°C until the moisture ranged from 6 to 8%. The following parameters were analysed and compared amongst the two storage methods: pH, water activity, total acidity and the content of fibre, ash, reducing sugars, protein, lipids and lipid profile, total phenols, total flavonoids, contents of vitamin C, β-carotene and lycopene. Microbiologic analyses were also made in order to certify if the product was in accordance with the standards for consumer´s safety.

A two-way analysis of variance was performed with two factors: species and storage method. The differences in the botanical origin for furthermost of the analysed parameters are a significant factor explaining the variation between samples. Even though the differences on the botanical origin play a key role, the storage method was also found to be a highly significant factor influencing several analysed parameters, namely: reducing sugars, lipids, total phenols, total flavonoids and contents of vitamin C, β-carotene and lycopene. Frozen bee pollen presented a significantly higher concentration of some important dietary. From the nutritional point of view, our results suggest that it is better to consume bee pollen frozen at −20°C in comparison to that dried in an electric oven. However, it is important to define very well the conditions during the frozen process to ensure a lower microbiological contamination that is easier obtain when the bee pollen is dried.

Key words: Bee pollen, storage method, microbiological analysis, physico-chemical analysis.

References:

Anjos O, Paula V, Delgado T, Estevinho ML, 2019. Influence of the storage conditions in the quality of bee pollen. Zemdirbyste-Agriculture. 106(1). In press.

Estevinho ML, Dias T, Anjos O, 2019. Influence of the storage conditions (frozen vs dried) in health-related lipid indexes and antioxidants of bee pollen. European Journal of lipids Science and Technology. In press, doi.org/10.1002/ejlt.201800393